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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/766,455	01/28/2004	R. David Morris	ATEX 8784US	3175
1688 7590 12/29/2008 POLSTER, LIEDER, WOODRUFF & LUCCHESI 12412 POWERSCOURT DRIVE SUITE 200 ST. LOUIS, MO 63131-3615				
EXAMINER WEINSTEIN, LEONARD J				
ART UNIT 3746		PAPER NUMBER		
MAIL DATE 12/29/2008		DELIVERY MODE PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/766,455

**Applicant(s)**

MORRIS ET AL.

**Examiner**

LEONARD J. WEINSTEIN

**Art Unit**

3746

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 24 September 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,4,7,9-11,13 and 16-21 is/are pending in the application.
- 4a) Of the above claim(s) 2,3,5,6,8,12,14 and 15 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,4,7,9-11,13 and 16-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

### DETAILED ACTION

1. This office action is in response to the amendment of September 24, 2008. In making the below rejections and/or objections the examiner has considered and addressed each of the applicant's arguments.
2. The examiner acknowledges the amendments to claims 1, 4, 11, 17, and 18.

#### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
  2. Ascertaining the differences between the prior art and the claims at issue.
  3. Resolving the level of ordinary skill in the pertinent art.
  4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
5. Claims 1, 4, 7, 9-11, 13, and 16-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sutton et al. 4,718,827 in view of Park 6,620,050, as evidenced by Raney et al. US 6,769,889 as evidenced by Kanies US 4,719,107, and further evidenced by Petach et al US 6,281,607. Sutton teaches all the limitations as claimed for a multi-stage turbine pump for an automotive vehicle including: **(claims 1 and 11)** a pump having an inlet section 16 through which low pressure fuel is drawn into the pump

10, the inlet section 16 includes an end cap 80 having an open sided recess 150 formed therein, the pump 10 further having a first pump stage 76, which includes an impeller 98 and a port plate 102 in which the impeller 98 is installed, the port plate 102 having an interiorly formed open sided spaced channel 146 which has an internal sidewall 164 formed therein, and the pump 10 also having a second pump stage 72 which includes a casing 104 in which a second impeller 122 is installed, the casing 104 having another open sided recess 148 formed therein and the pump 10 further having an outlet section 30 through which high pressure fuel is discharged from the pump 10, a spring pin 154 extending between the open sided recesses, elements 148 and 150, of the end cap 80 and the casing 104 and extending within the sidewall 164 of the open sided spaced channel 146 of the port plate 102 such that the circular sidewall 164 substantially encapsulates the spring pin 154 wherein the spring pin 154 aligns the inlet section 16 and the first and second pump stages, elements 76 and 72 respectively; **(claims 4 and 13)** a second spring pin, element 154 shown in figure 2 on a far side of pump element 10 disposed on a side opposite to a first instance of element 154 about axis 13, for aligning the inlet section 16, the first and second pump stages, elements 76 and 72 respectively, and the outlet section 30, and including a second open sided recess 150 formed in each of the end cap 80, and casing 104 and further including a second open sided spaced channel 146 formed in the port plate 102 in which the second spring pin 154 is received; **(claim 9)** a spring pin 154 made of a spring material, the springs 154 being compressed when the inserted in the open sided channels 146 of the port plate 102 with the pins thereafter expanding against a sidewall 164 of the open side channels

146 with the force exerted by the pins 154 on the sidewalls 164 maintaining alignment of the inlet section 16 and the first and second pump stages, 76 and 72; **(claim 10)** two spring pins 154, clearly shown twice in figure 2, the open recesses, elements 150 and 148, formed in the end cap 80 and the casing 102 respectively, and the open sided spaced channels 146 formed in the port plate 102 are arranged (or are capable of being arranged) offset in a predetermined angular relationship with each other for proper alignment of the fuel pump 10 components during pump assembly (col. 5 ll. 10-24); **(claim 17)** and an alignment means, as defined by elements 146, 148, 150, and 164, for use in a multistage turbine fuel pump 10 for aligning components comprising respective stages, elements 72 and 76, of the pump 10 the alignment means, as defined by elements 146, 148, 150, and 164, including a spring pin 154 made of a spring material and having an open sided channel, as defined by elements 156 and 160 of element 154, formed therein such that the spring pin 154 when installed in the channel, as defined by elements 156 and 160 of 150, exerts a force on the components to maintain them in alignment (col. 5 ll. 6-24); **(claim 18)** pair of substantially identically formed spring pins 154, as shown in figure 2, the fuel pump 10 components, elements 146, 148, 150, and 164, including respective open sided channels, as formed by element 146, for each pin 154 wherein the open sided channels 146 partially encapsulate each pin 154 (fig. 1); **(claim 19)** a pin 154 is compressed when inserted in the open sided channel 146 for the pins 154 to thereafter press against a sidewall 164 of the open sided channel 146 in which it is inserted, the force exerted by the pin 154 on the open sided channel sidewall 164 holding the components, elements 72 and 76, in alignment

(col. 5 ll. 6-24); (**claim 20**) two spring pins 154 and the open sided channels 146 formed in which the spring pins 154 are received are arranged in a preferred orientation to properly align the components, elements 72 and 76, during pump 10 assembly (col. 5 ll. 10-24); (**claim 21**) and a two stage fuel pump 10 having an inlet end cap 80, a first stage port plate 102 and a second stage casing 104, the inlet end cap 80, port plate 102, and casing 104 each having open sided channels, elements 150, 146, and 148 respectively, formed therein in which the respective spring pins 154 are received, thereby to dissipate forces transferred from the spring pins 154 to these components, elements 72 and 76.

Sutton fails to teach the following limitations that are taught by Park for an alignment means for a motor driven apparatus wherein: (**claim 1 and 11**) a casing 30, has and internal circular sidewall, inner surface of element 170, in an open sided spaced cylindrical channel 170, a spring pin 150 extending within a circular sidewall, inner surface of element 170; (**claims 7 and 16**) a spring pin 150 has a hollow, cylindrical shape with a longitudinal slot extending the length of the pin 150, clearly shown in figures 4-8; (**claims 9 and 16**) a plurality of pins 150 made of a spring material (Park - col. 3 ll. 35-40), the springs 150 being compressed when the inserted in the open sided channel 170 of the with the pins 150 thereafter expanding against each circular sidewall, inner surface of element 170, of the open sided channels 170 with the force exerted by the pins 150 on the open sided channel sidewalls, inner surface of element 170, maintaining alignment of (Park col. 3 ll. 35-40). It would have been obvious to one having ordinary skill in the art the time the invention was made to modify the structure of an alignment assembly of a fuel pump, as taught by Sutton, to include

circular channels capable of receiving cylindrical spring pins, as taught by Park, in order to increase an over strength of a pump assembly and aid in reducing vibration of components during operation (Park – col. 2 ll. 36-43).

The examiner notes that if Sutton were modified to receive a cylindrical spring as taught by Park, the modification would including boring out the channels 150, 146, and 148, into smooth rounded surfaces that could receive the spring pin that is taught by Park. The pins of both Sutton and Park provide a teaching for an apparatus that maintains two or more cylindrical components (port plate 74 and pump stages 102 and 104 of Sutton and pipe 30 and yoke joint 10 of Park) in angular alignment. Raney provides evidence that it was known in the art, at the time the invention was made, to use cylindrical pins 58 for aligning at least one pump stage 12 with port plates (14, 16) on each end. Further Kanies provides additional evidence that it was known in the art at the time of the invention to use roll pins 39 (conventionally known as spring pins) to align valve plates for positive displacement pumps (Kanies - fig. 1; col. 3 ll. 40-42).

The following paragraph provides the motivation for modifying Sutton in view of Park, all references that not in parenthesis or otherwise noted refer to elements disclosed in Sutton. A combination of Sutton and Park would result in the channel 146, and recesses, 148 and 150 being bored out to be a smooth cylindrical channel as taught by Park (Park – 170). The modification would also result in the spring pin 154 of Sutton being replaced by the roll pin of Park (Park – 150). If a roll pin (Park -150) supplied was the same length as the full length of a spring pin 154 taught by Sutton, meaning from rolled-over end 158 to opposite rolled-over end 158, the roll pin (Park -

150) would extend into recesses 146 and 150. Therefore due to the modified open side of the end cap recess (Sutton 150 modified as Park 170), the casing recess (Sutton 148 modified as Park 170), and the port plate cylindrical channel (Sutton 146 modified as Park 170), forces exerted on and by the spring pin (Sutton 154 substituted by Park 150) will be distributed and dissipated through the end cap 80, the casing 104, and the port plate 102 such that the forces would not be concentrated about the port plate cylindrical channel (Sutton 146 modified as Park 170). Petach teaches that the use of two tubular spring pins (Petach – 144 and 146 – i.e. roll pins) disposed on opposite sides of a tubular stem (Petach 108) in order to minimize the transmission of forces due to vibration of a stator frame (Petach 150). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify a spring clip and recess for retaining a spring clip used to align and retain a pumping stage in multistage fuel pump, as taught by Sutton, boring out the recess in to a cylindrical channel and employing a roll pin, as taught by Park, in order to minimize the transmission of forces due to vibration on to a portion of casing housing the pump stages of a fuel pump (support found in Petach - col. 4 ll. 63-67).

### ***Response to Arguments***

6. Applicant's arguments with respect to claims 1, 4, 7, 9, 10, 11, 13, and 16-21 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP



§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LEONARD J. WEINSTEIN whose telephone number is (571)272-9961. The examiner can normally be reached on Monday - Thursday 7:00 - 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Devon Kramer can be reached on (571) 272-7118. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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Supervisory Patent Examiner, Art  
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